

## THE USE OF INTERACTIVE WHITEBOARDS FOR TEACHING AND LEARNING IN TERTIARY INSTITUTIONS

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### ABSTRACT

The study is descriptive survey research that is intended to examine how interactive whiteboards are used in tertiary institutions for teaching and learning. The Ignatius Ajuru University of Education in Rivers State is the study's location. All education students at Ignatius Ajuru University of Education's Faculty of Education make up the study population. The study included 270 pupils as a sample. Using a simple random sampling procedure, candidates were chosen. The interactive whiteboard for teaching and learning at tertiary institutions (TUOIWBFTLTI), a structured questionnaire with 30 items, was utilized as the study's instrument to gather data from respondents. The responses were correlated and a test-retest was used to achieve a reliability coefficient of 0.64. The statistical methods for the investigation were mean and standard deviation. The study discovered that students' interactive whiteboards incorporate different learning styles into a single experience, are spotless and require very little maintenance, and don't require chalk, markers, or any other writing implements. The researcher advises using smart interactive whiteboards for student presentations in light of the findings.

**Keywords:** Interactive whiteboard; internet connectivity; learning styles; classroom; students.

### 1. INTRODUCTION

Interactive whiteboards are utilized in classrooms, conference rooms, hospitals, and other places where presentations are necessary. Using an interactive smart board, also referred to as an electronic whiteboard Hamdi [1], a digital projector can be used to display images from a computer screen on a school board. The teacher or a student can engage with the visuals on the screen right away by using a tool or simply their finger. Using a computer connected to the internet or a local network, teachers can access resources from all over the world. They can look up a lesson they've already utilized with relative ease. Both teachers and students benefit from the classroom's interactive whiteboard. It invites the students to work together and engage more deeply in the lessons. The usage of multimedia materials in lectures can keep students interested[2].

Using interactive whiteboards, different learning styles can be combined into a single experience. Through touch, auditory, and visual interactions with the board, students can learn. As a result, teachers are given innovative, unique approaches to teaching the same subject material. As a result, students learn more efficiently and retain more

information. Students can participate in the curriculum by using interactive whiteboards. They take part in the lecture and are even able to teach one another. One can demonstrate their understanding of the material by touching, sketching, or writing on the board[3]. Educational games can be played by the entire class. Additionally, they provide prompt feedback so that instructors and students can assess students development quickly. The interactive whiteboard is neat and easy to maintain. There is no requirement for chalk, markers, or any other writing implement. Data is annotated, written in, and highlighted using a socialized pen and therefore classroom instructions are presented without any clutter or cleanup. A variety of media formats can be shown on an interactive whiteboard. Teachers can create interesting lessons using a variety of tools at their disposal. Because of the internet connection built into the interactive whiteboard, a user has access to a wide range of online resources and data. To supplement and enhance their courses, teachers can use a wide range of resources, such as videos, articles, images, learning tools, and more. Additionally, there are a ton of learning and research materials available to students. Thanks to interactive whiteboard technology, many new technologies can be integrated to enhance student learning[5].

The current equivalent of the conventional classroom blackboard is a whiteboard, which is often a magnetic metal sheet coated with a glossy, white surface. Dry erase boards, commonly known as whiteboards, are white rather than black, and dry erase markers are used to write on them rather than chalk. They are useful additions to homes, offices, and classrooms.

Whiteboard use is easy and doesn't call for any particular expertise. Like their equivalents on blackboards, they can be easily erased and used again for quick explanations and impromptu work. The explanation of math problems, reading texts, matching exercises, rating activities, discussion activities, and other "unfolding processes" are all excellent uses for whiteboards. Students are paying closer attention in class. Reading comprehension, test scores, and literacy all improve as a result of improved student learning and knowledge retention. When students participate more in class, learning always [6]. Courses that will motivate students, such as images, graphs, maps, illustrations, and videos. Keeping students' attention in the classroom can be difficult, especially with all the modern distractions like cell phones and iPads. Whiteboards are good at retaining children's interest and desire to study.

The following are only a few of the benefits of using an interactive whiteboard for education, according to Biro [7]:

- **Active Recall:** Whiteboards are great for jogging memories of information and replicating lectures. You grab a marker and start writing thoughts down on paper as you approach them. With paths, mechanisms, summaries, lists, and maths, you can accomplish anything.
- **Mind maps** can be made on whiteboards to logically connect topics for visual learners. When studying subjects like anatomy, for instance, where you can link features to functions and subsequently various problems, this is helpful. The same is true for producing visually appealing tables and charts that display data.
- Everything can be written down on a decent whiteboard. not constrained by a physical space 365  
Never stop learning [8]
- **Proactive Advice:** When you leave or enter your home, having a whiteboard at the front and middle of your room can act as a potent reminder of the individual goals you have established for yourself.

According to Morgan[9] by keeping track of anything akin to they do not break the chain exercise, where each day's effort is represented by a long chain, you may stay motivated and focused.

## **II. PROBLEM OF THE STUDY**

Teachers and students can write or draw on interactive whiteboards, which are giant white screens connected to computers and projectors. These tools have drawbacks despite the interactive and visual learning opportunities they provide. Some classroom settings make it challenging for pupils to view and efficiently use interactive whiteboards, and teachers without strong technical skills or whiteboard training may find it challenging to operate them[10]. Teachers can use interactive whiteboards to explain concepts in a way that engages students, but the lessons take time to plan and prepare. Teachers must conduct research, analyze, interpret, install, and manage software packages that help with the usage of these whiteboards, in contrast to ready-to-use textbooks. However, some teachers prefer to use traditional textbooks, chalkboards, and handouts instead of whiteboards, especially when technology is not their strong suit. Once teachers invest some initial time in developing whiteboard lesson plans, they can use them year after year and make simple lesson adjustments along the way.

### **Aim and objectives of the study**

This study investigated the use of interactive whiteboards for teaching and learning in tertiary institutions. Specifically, the study intends to:

1. Explain the benefits of interactive whiteboard for teaching and learning
2. Evaluate the ways to use interactive whiteboards in the classroom
3. Mention the limitations of interactive whiteboard for teachers and students

### **Research Questions**

1. What are the benefits of interactive whiteboards for teaching and learning in tertiary institutions?
2. How do you use the interactive whiteboard for teaching and learning?
3. What are the limitations of interactive whiteboards for teachers and students?

### III. METHODOLOGY

The study is a descriptive survey research that is intended to examine how interactive whiteboards are used in tertiary institutions for teaching and learning. Ignatius Ajuru University of Education in Rivers State is the study's location. All education students at Ignatius Ajuru University of Education's Faculty of Education make up the study population. The study included 270 pupils as a sample. Using a simple random sampling procedure, candidates were

chosen. The interactive whiteboard for teaching and learning at tertiary institutions (TUOIWBFTLTI), a structured questionnaire with 30 items, was utilized as the study's instrument to gather data from respondents. The researcher's instrument was given to specialists in educational technology to check validity. Test-retest was used to assess the instrument's reliability, and the results were then correlated to produce a reliability coefficient of 0.64. The statistical methods for the investigation were mean and standard deviation.

### Results and Discussions

**Research Question 1: What are the benefits of interactive whiteboards for teaching and learning in tertiary institutions?**

**Table 1: Benefits of interactive whiteboard**

S/N	Items Benefits of interactive whiteboards	Mean	Standard Deviation
1.	Interactive whiteboards integrate various learning styles into one experience.	3.43	0.49
2.	Students can learn by seeing, hearing, and interacting with the board through touch.	3.16	0.54
3.	This equips teachers with new innovative ways to teach the same subject materials, because of this, students learn better and remember more.	3.29	0.59
4.	interactive whiteboards allow students to interact with the learning material, they become a part of the lesson and can even teach each other.	3.17	0.65
5.	The interactive whiteboard is clean and requires very low maintenance, no chalk or markers, or other writing utensil are needed.	3.36	0.52
6.	Various media types can be displayed on an interactive whiteboard. Whether photos, graphs, maps, illustrations, or videos, teachers have an abundance of options teachers can create creative lessons to inspire students.	3.24	0.42
7.	The interactive whiteboard is connected to the internet which gives a user a resource of online tools and information.	3.14	0.58
8.	Interactive whiteboard technology allows for the integration of various other technologies to enhance student learning.	3.10	0.54
9	Teachers have access to various sources to enhance and support their lessons with videos, articles, images, learning tools, and more.	3.21	0.57
10	students are more attentive in the classroom, comprehension improves, test scores rise, literacy increases, and students learn better and remember it.	3.17	0.58
	<b>Average Mean</b>	<b>3.22</b>	<b>0.54</b>

Table 1 demonstrates that all of the benefits of interactive whiteboards for teaching and learning in higher education were embraced by students. This is due to the fact that every item's mean was higher than the 2.50 criteria mean. A 3.22 average implies

that interactive whiteboards blend different learning methods into a single experience. They are also clean and extremely low maintenance, requiring no chalk, markers, or other writing implements.

**Research Question 2: How do you use the interactive whiteboard for teaching and learning?**

**Table 2: Usage of interactive whiteboard**

S/N	Items Usage of interactive whiteboards	Mean	Standard Deviation
1.	To improve collaborative processes when working remotely	3.28	0.63
2.	Teams can work on a shared board and visualize everything they do in real-time	3.25	0.57
3.	To boost the efficiency of online meetings and collaborative sessions	3.21	0.59
4.	They enable users to do a workshop completely digital and remotely	3.12	0.59
5.	To foster the creativity of teams when working digitally	3.00	0.65
6.	To make innovation happen even when people work remotely	3.25	0.50
7.	To implement agile methods and create an agile virtual workspace	3.20	0.52
8.	Whether photos, graphs, map, illustrations, or videos, teachers have an abundance of options teachers can create creative lessons to inspire students.	3.31	0.62
9	Data is modified using a socialized pen for highlighting, drawing and writing.	3.22	0.62
10	Teachers have access to various sources to enhance and support their lesson with video, articles, images, learning tools and more. Students also have a rich resource for research and learning	3.52	0.63
	<b>Average Mean</b>	<b>2.92</b>	<b>0.59</b>

Table 2 demonstrates that all of the items for using an interactive whiteboard for teaching and learning were accepted by the students. This is due to the fact that every item's mean was higher than the 2.50 criteria mean. Using a median score of 2.92, it is

clear that teachers have access to a variety of resources to enrich and support their lessons with videos, articles, photos, learning tools, and more. Students also have access to a wealth of learning and research resources.

**Research Question 3: What are the limitations of interactive whiteboards for teachers and students?**

**Table 3: Limitations of interactive whiteboard for teachers and students**

S/N	Items Limitations of Interactive whiteboard	Mean	Standard Deviation
	<b>Average Mean</b>	<b>3.21</b>	<b>0.53</b>
1.	Far more expensive than traditional whiteboards or projector screens	3.42	0.53
2.	Can be difficult for some schools and non-profit organizations to obtain due to cost	3.31	0.61
3.	Information may be jumbled or distorted if multiple data entry is allowed	3.20	0.47
4.	Motivation can wear off in students once used to the Interactive Whiteboards	3.18	0.48
5.	Interactive Whiteboards tend to be PC friendly not MAC friendly	3.13	0.43
6.	Can take up a lot of classroom space	3.44	0.49
7.	Interactive whiteboard surface can become damaged	3.52	0.54
8.	Students do not always get direct, hands-on experience	2.97	0.61
9	Limited view for students	3.06	0.56
10	Pace may be too fast or too slow for students to follow	2.96	0.61
	<b>Average Mean</b>	<b>3.21</b>	<b>0.53</b>

Table 3 demonstrates that students recognized every item as an interactive whiteboard limitation for professors and students. This is due to the fact that every item's mean was higher than the 2.50 criteria mean. An average score of 3.21 shows that interactive whiteboards are more expensive than regular whiteboards or projection displays, prone to breakage, and take up a lot of room in classrooms.

#### **IV. DISCUSSION AND FINDINGS**

##### **Research Question 1: What are the benefits of interactive whiteboards for teaching and learning in tertiary institutions?**

The study discovered that students' interactive whiteboards incorporate different learning styles into a single experience, are spotless and require very little maintenance, and don't require chalk, markers, or any other writing implements.

The study supports the findings of Haiza, Abdul, and Azizah [11], who discovered that using an interactive whiteboard can help kids stay focused, build confidence, and become more motivated and proficient learners. To make sure that the strategies can actually achieve their learning objectives, teachers must be very careful about how they present the material and use technology.

The findings of the study are in line with those of Ersan [12], who discovered that the efficient use of visual resources, such as photos, photographs, and videos, allows the learners to understand the subject better, teaching speed, and practicality.

##### **Research Question 2: How do you use the interactive whiteboard for teaching and learning?**

According to the survey, teachers have access to a variety of resources that may be used to supplement and support their lessons including videos, articles, photos, learning tools, and more. Students have access to a wealth of resources for learning and research.

The results of the study concur with those of Brigita, & Birute [13], who discovered that using an interactive whiteboard makes students more interested in the classes' themes and hence enhances their desire to learn.

The findings of the study concur with those of Tim & Wohninsland [14], who discovered that an interactive whiteboard lesson in which teachers use the interactive elements in meaningful ways can inspire students and enhance their academic growth.

##### **Research Question 3: What are the limitations of interactive whiteboards for teachers and students?**

According to the report, interactive whiteboard surfaces can get scratched, they can cost significantly more than regular whiteboards or projection screens, and they can also take up a lot of room in the classroom.

The study supports the findings of Mokibelo et al [15] who discovered technical teaching materials and lessons, a lack of involvement, poor health, and a lack of electricity. It was suggested that teachers would be successful in using interactive whiteboards to solve problems if they could adopt a positive problems attitude.

The study supports the findings of Mohammed et al [16] who discovered that teachers lack understanding regarding smart board troubleshooting and that more than 42% of teachers complain about their hectic schedules.

#### **V. CONCLUSIONS**

The researchers' conclusions were as follows:

1. According to the study, interactive whiteboards help students incorporate different learning methods into a single experience. They are also clean and extremely low maintenance, requiring no chalk, markers, or other writing implements.
2. Teachers can supplement and complement their class with videos, articles, photos, learning tools, and more from a variety of sources. Students have access to a wealth of resources for learning and research.
3. The surface of an interactive whiteboard can get scratched, it can be much more expensive than regular whiteboards or projection screens, and it can take up a lot of area in the classroom.



## VI. RECOMMENDATIONS

According to the findings, the researchers suggested the following:

1. For student presentations, smart interactive whiteboards can be useful
2. Teachers can create an interesting environment in the classroom where students participate in conversation rather than just sitting still.
3. Teachers can simultaneously project into the classroom and write on a screen.

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